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AFV-G2

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COVER: The Commando Armored Car, currently being used in Vietnam by U.S. and ARVN forces, is covered in our feature article this month. Our air-brushed cover rendering is courtesy of the Cadillac-Gage Company.

The AFV-G2 is a magazine, published monthly, for Armor Enthusiasts, with the purpose of gathering and disseminating information about Armored Fighting Vehicles and their employment; to provide an opportunity for persons seriously interested in the History of Armored Fighting Vehicles, in the modeling of these AFV's and associated equipment, and in the playing of military Wargames utilizing miniature AFV's, to share ideas and items of mutual interest, and to promote an interest and awarsness in the subject of AFV's.

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COMMANDO *Armored Cars In Vietnam*

by A. C. Clemens

"The most remarkable defect of all early types of wheeled and armoured fighting vehicles was their poverty of firepower compared to their armoured mobility."
C. R. Kutz, "War On Wheels"

Now that the Commando V100 is a combat veteran with many hours under fire, it has become a new authority in the world of armor. It has fast changed from a defensive personnel carrier to that of a true fighting vehicle.

Clean without ostentatious lines, unblemished, it is even deceptively innocent looking; enemy troops have actually stood up in the open and fired at it. The Commando is a different kind of armored car, it has shaped up well under examination, and we have learned that we do, indeed, need this type of vehicle.

The Cadillac Gage Company, of Detroit, Michigan developed the large angular V100 in 1959. The company brochure speaks of mobility and reliability, and boasts that the Commando is the most "versatile" vehicle ever built. Versatile means: "Competent in many things", and that description is not out of line when one considers the mission of the Commando. Advertised as a personnel carrier, a convoy escort vehicle, a reconnaissance car, and a riot control and police vehicle, it hardly needs the added amphibious feature it seems. In fact, the performance on dry land is so compatible with what one expects of an armored car, it is easy to forget that it can be driven directly into the water.

If these capabilities are thought of as far reaching or excessive it must be understood that one overlaps the other, with the exception of the amphibian attribute or that of the personnel carrier. Most contemporary armored cars could handle reconnaissance or escort missions or police work, but a fighting vehicle that doubles as a personnel carrier is unique and valuable.

Unlike other vehicles currently being used in convoy escort (i.e. the armored 1/4 ton (M151) truck with pedestal mounted M-60 machine gun), there is a valid sense of security in the Commando. The 720th Military Police Battalion feels that: "The use of the vehicle has brought about an improvement of convoy security because of the protection it affords the crew....." When you step into the Commando you immediately slide into a padded bench attached to the wall of the hull. The hull design (welded, unitized structure) allows maximum space inside although the turret structure takes up much of the room in the center of the vehicle. The light-green colored interior is designed to dispel the uneasiness of confinement, but the soldier, fresh from battle would no doubt find the Commando a welcome, sanitary haven compared to the dusty road or alien enemy jungle. Confinement in this case might be interpreted as security.

Driving the V100 is like driving most four-wheel-drive vehicles, but the driver's position is rather cramped--at least on the older units. Visibility through the vision blocks is tolerable, after getting used to them, and when using the proper blocks the driver should attain at least 180 degrees of direct lateral visibility.

Generally, the V100 is a comfortable vehicle. The large run-flat tires (a 12-ply tire made especially for the Commando) and leaf spring suspension absorbs the brunt of the road shock. This lends itself to ease of handling. In fact, the vehicle can be put through its paces by an expert driver after a three day training program; such a training program has been very successful in Vietnam.

The crew of the Commando, as it is used in the convoy escort application, consists of: Commander (Sgt E5), Gunner, Radio operator, and Driver. The commander carries a .45 caliber pistol and a M-79 grenade launcher; the rest of the crew are armed with a .45 caliber pistol and a

M-16 rifle. In the case of some of the Vietnamese operated Commandos, the car carries "seven specialists". The commander is stationed next to the driver, and there are three gunners in his team; one in the turret with an ammunition man on each side of him. It is assumed that the radio operator doubles as an ammunition man.

The top of the turret, on the present V100 vehicle, is 96 inches from the ground, and a newer version, the V200, promises to be even higher. Height is not a detriment to the Commando; troops have expressed a liking for that extra height even though certain armor people continue to say "keep it low". The crew wants visibility and they want a sweeping latitude for their weapons. To confirm this, one military evaluation reads: "The high ground clearance should offer better protection from certain mines, and personnel mines should have no effect upon the operation of the vehicle." It was learned that one V100 vehicle was lifted completely off the ground by an implanted enemy mine, and was deposited in a ditch at the side of the road. The crew, shaken but in one piece, righted the vehicle and continued on their way. The high ground clearance and the lightness of the vehicle saved the crew; a lower, heavier vehicle would likely have been penetrated.

In 1939, the controversial automobile designer Preston Tucker was highly disappointed that the Army was not impressed with his 117 MPH armored "Tucker Tiger"; but speed is not the only essential element of an armored car. The Commando, at 60 MPH, was reported to be "...approximately 25 MPH faster than would normally be necessary." This is because of the normally slow convoy speed; however, short bursts of speed would be both necessary and practical, as evidenced by the 4th Infantry Division's Military Police "counter-ambush plan":

> "Those vehicles that are caught up in the killing zone of an enemy ambush move out of the zone as fast as possible. Those ahead of the killing zone speed up to the nearest secure area, and those vehicles that have not yet reached the zone should return to the nearest secure area."

As this is done, the Commando will move into the killing zone if necessary, to escort personnel to safe ground.

To expand on the words of C. R. Kutz; all fighting vehicles, in their early stages, are defective to some degree by a "poverty of firepower". Firepower is a lesson that must be learned over and over again. The Commando started its career with a small turret and a small choice of weapons, but the Commando was singularized by a unique design characteristic. It had great weapon adaptability; anyone can change the firepower of the Commando to suit their needs--in the field.

The Vietnamese 11th Armored Cavalry Regiment had two of their V100's put out of commission by some well directed B-40 rockets; the following are the words of PFC Ken Smith in his article, "Armored Cars":

> "The platoon's 12-man maintenance crew took the disabled vehicles' four guns and installed one each at the front of the other cars. They then removed one weapon each from the two-gun turrets and bolted one to the rear of each car. The modified cars now sport a kind of '"miniature front line"' of fire, with 33 percent more power....."

The Commando in combat has been decked out with everything that could be spared. "Luckily, I made contact with an aviation Supply Sergeant", reads a May 1969 Commando report, "who had an abundance of M60 C model (electrical fired) machine guns...." These as well as others are being fitted to the V100. These experiences point out the explicit need for more weapon adaptability in other vehicles. The vehicle should not be confined to limited firepower while it is still on the drawing board.

Another Vietnam evaluation; "There is a definite need for a M-60 machine gun with shield mounted on the rear of the vehicle to be fired from the radio operator's hatch." This modification has recently been done; and more, including experiments with the "minigun". Such variations lead one to consider heavier weapons. The Cadillac Gage Company is now developing the new V-200 with a new two-man turret. They will advertise an option of 20mm or 90mm guns.

The designers willingness to revamp their vehicle, and to increase firepower, points out the results of continued offensive use in Vietnam. Its new role is to return fire, and although this might be expected from a fighting vehicle, it is a rare occupation for an American wheeled vehicle. Most American tacticians do not place much insistence upon armored cars but the Commando is making the scene in Vietnam; it must go into the killing zone.

In October 1969, "The Army Reporter" quoted the driver of a V100 saying: "We sat there and fired while the convoy went through the ambush point, then we moved into a better position and opened up with everything we had." In this action the V100, near the front of the convoy, had to make a U-turn and drive back along side the convoy in order to return to the killing zone. The Viet Cong, previously hidden by the tall elephant grass, stood up to fire at the Commando. "I saw at least 10 or 12 of them go down during our runs back and forth through the kill zone", commented a crew member. The vehicle was alone for 15 minutes before help came.

In this situation, the vehicle was in its proper element and it had adequate firepower. The enemy foolishly stood up--perhaps they felt the run-flat tires were good targets--and later 43 enemy bodies were counted.

SPECIFICATIONS

Characteristics	Commando (4x4) V-100	Commando (4x4) V-200
Crew	up to 12	up to 14
Weight, Combat (GVW)	16,250 lbs.	25,000 lbs.
Wheelbase	105 in.	128 in.
Length	224 in.	240 in.
Height	96 in.	100 in.
Width	89 in.	100 in.
Tire size/type	14:00 x 20/run-flat	16:00 x 20/run-flat
Wheels	4x4	4x4
Engine Type	V-8 Gas	V-8 Gas or V-6 Diesel
Engine Power	205 hp.	275 hp. (Gas) or 215 hp. (Diesel)
Transmission	Manual (5 speed)	Manual or Automatic
Armament - Main	2 ea .30 caliber MG, or 1 ea .30 caliber MG and 1 ea .50 caliber MG, or 2 ea 7.62mm MG.	1 ea 20mm Cannon and 1 ea 7.62mm MG, or 1 ea 90mm Cannon and 1 ea 7.62mm MG.
Fuel Capacity	80 Gallons	100 Gallons
Highway Cruise Range	400 - 600 miles	500 miles
Amphibious Drive	Wheels	Wheels
Water Speed	3.5 MPH	3.5 MPH
Maximum Land Speed	62 MPH	60 MPH
Minimum Turning Radius	27 feet	30 feet

In the United States arsenal, the Commando is filling a long sought after need for a light armored car, easy to drive and maintain, and with the added capability to fill the role of both amphibian and personnel carrier.

Note: All photos in this article are courtesy of Cadillac Gage Company, Detroit, Michigan and the author.

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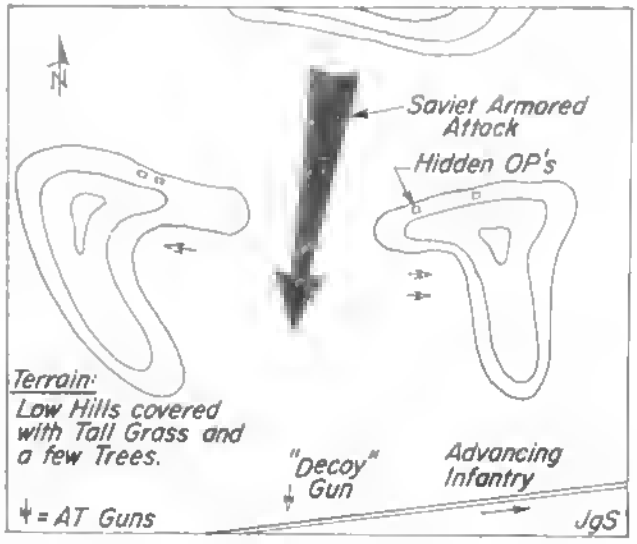
Männer Gegen Panzer; Men Against Tanks

by Kurt Fischer

If a good many writers are to be believed, the Russian T-34 medium tank was the finest tank of World War II, and it was almost invincible, until the German "Panther" was introduced. I should pay some tribute to these men, as the T-34 was a tough opponent. But, this tank was vulnerable to many of our weapons, and we knocked-out many of them with "improvised" hand-to-hand techniques, before we even knew what a "Panther" was. During the early summer of 1942, I had the "luck" (if any service on the Ostfront could be considered "luck") to see what a determined and skillful defense could do against Soviet armor. At the time, I was the "second in command" of an Anti-Tank Platoon (Pak-Zug) equipped with four 5cm Pak 38 guns. I was then waiting for my promotion to Lieutenant (Leutnant), and was "officially" gaining experience in combat. Our platoon was assigned as flank security for an advancing Infanterie-Regiment, traveling along a road about 750 meters away from our position (see map). Our experienced Platoon Leader had long before decided that our best defense was in a "surprise" against any enemy armor, and that we could do our best work against the weaker sides of the enemy tanks. One of our guns was positioned so that it directly "defended" the road. This was our "decoy" gun, to fix the attention of any attacking tanks. The Soviets were known to drive straight at anti-tank guns, presenting their thickest armor to our guns. Our remaining guns were positioned to give a crossfire (targets at 250 meters range or less) at the anticipated enemy advance route. We knew (from examination of a captured T-34) that forward vision was limited in the enemy tanks, and that their powerful gun was generally inaccurate at ranges over 500 meters (poor optics and worse gunners). Our AT gunners, being resourceful, had painted small white silhouettes on the inside of our gun shields, showing the actual size of the enemy tank at the most effective ranges (both side and front) and we had carefully marked in red the best aiming points. (This data had been provided us by our Intelligence people in booklet form.) Our guns (except the "decoy") were carefully dug-in, so that very little was visible; this was very easy with the 5cm Pak 38, which had an extremely low silhouette. The guns were carefully camouflaged with grass, and all our personnel "went to earth" without showing any outward movement. Our two supporting MG-34's were also concealed. The ammunition had been carefully cleaned, and it was laid just outside the gun trails, where it could be easily passed. Orders had been given for all guns to avoid any disclosure of their positions by premature firing. The "decoy" gun was to be the first to open fire; and its first shot was to be used to alert the other gun crews. Most of our ammunition consisted of the Pz. Gr. 39 shells, which



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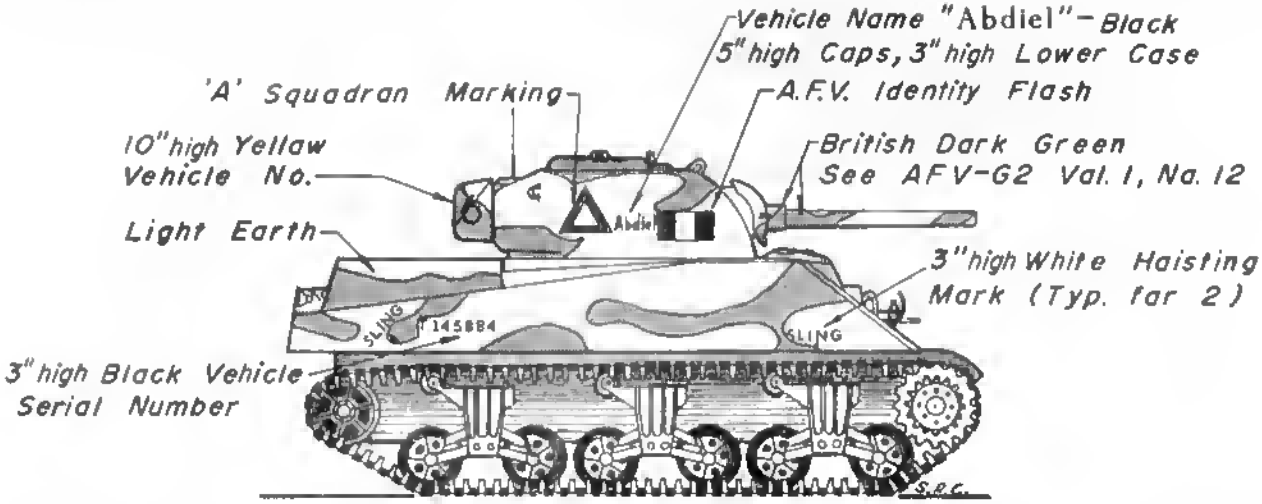
Color 'n' Camouflage

British Sherman in Sicily

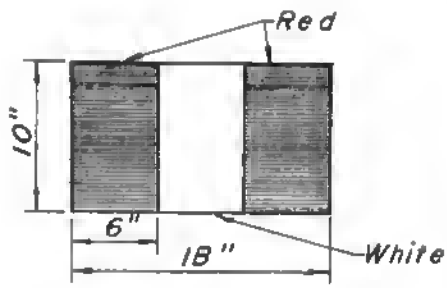
by Bill Platz

The M4 Sherman tank entered British service in October of 1942, at the Battle of El Alamein and it quickly demonstrated its superiority over all previous Allied tanks. At first, there were only a few of these tanks - a squadron or two per regiment; but as the 8th Army drove across North Africa, the Shermans multiplied, until by June of 1943, complete regiments were equipped with the new machines.



The "Desert Yellow" of the 8th Army had been left behind in Tunisia, when the Shermans of 4th Armoured Brigade landed on the beaches of Sicily during the night of June 9, 1943. The vehicles were now sporting new coats of paint - Light Earth Brown and Dark Green - for their uninvited return visit to "Festung Europa". These colors were applied in the pattern shown in the drawing above, and were designed to hide the vehicles against the soil of Italy; however, in actual practice it was the soil of Italy (or rather the dust) that obscured the camouflage patterns. In any case, the results were the same.

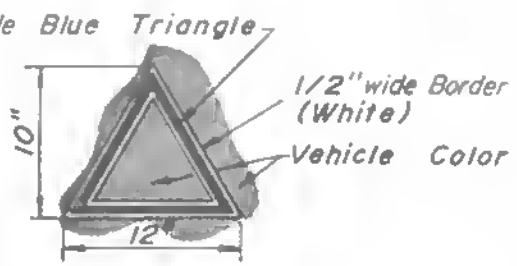
The particular vehicle shown here - Number 6 tank of "A" Squadron, 3rd County of London Yeomanry, of the 4th Armoured Brigade - was an M-4A3 as it appeared in September 1943, at the conclusion of the campaign in Sicily. As 4th Armoured Brigade was acting as an independent armoured brigade group attached to various corps of the 8th Army, no divisional formation sign was displayed on the vehicle. Indeed, had the tank crews kept up with the constant changes in the higher echelons, they would have had little time to do anything other than repaint their insignia. Nevertheless, the vehicle still sports ample tactical markings. On the turret roof, there appeared an R.A.F. style "Roundel" of concentric rings of yellow, blue, white and red. (Perhaps an indication of the growing Allied air power.) On the turret sides was a mass of markings. On our Number 6 tank, these appeared as shown, with the British AFV Identification Flash, a rectangle 10 inches high and 18 inches long divided into contrasting red/white/red sections, forward. This is followed by the Vehicle Name in black lettering and then the "A" Squadron Mark, a one inch wide blue triangle outlined with a 1/2 inch wide band of white or pale yellow. At the rear of the turret, on the side of the stowage box, was found the single digit (or two digit in some cases) number that identified the particular vehicle within the squadron. This was a 10 inch high yellow "6". The left side of the



A.F.V. IDENTITY FLASH

turret (not shown) was marked in the same manner, however, the vehicle name "Abdiel" was omitted.

The arrangement described above, however, was not uniform for the entire squadron. The Number 7 tank - named "Aphrodite" - had a different arrangement, with the Vehicle Name forward, followed by the Squadron Mark and AFV Flash. There were also variations in the color of the "A" Squadron triangle; Tank Number 15 used a set of parallel blue lines similar to the outlining shown; and photographic evidence indicates a solid yellow triangle was also used in some cases. All of these variations were noted during late September and October of 1943.



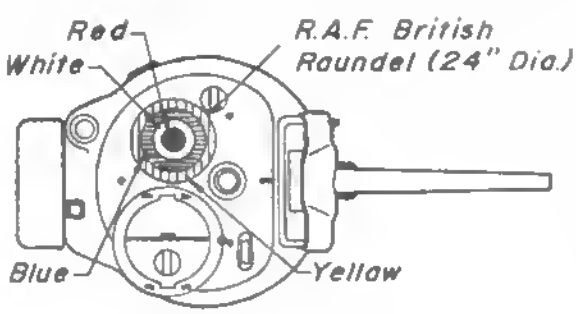
SQUADRON MARKING

The hull markings on the tank were comparatively simple. On the rear sides of the hull, the Census (or WD) number was painted in 3 inch high black letters. Also referred to as the vehicle's serial number, this never changed regardless of the unit, the changes in paint finish, or the theater of operations. (Note the alteration of the camouflage pattern around the numbers in the side view.) The WD number consisted of the letter "T" and a series of numbers, in this case six digits; and it indicated the type of vehicle as well as identifying the exact piece of equipment to the war office (the "T" being used for tanks, "F" for armoured cars "S" for Self-propelled Artillery, "H" for gun tractors, etc.). The other hull markings consisted of a set of hand lettered "Sling" marks with appropriate arrows, done in white 3 inch high letters. These were temporary markings to facilitate the loading of the vehicles aboard ship for the trip to Toranto. (Sept. 23, 1943)

BRITISH LIGHT EARTH
24pts F85 Antique White
15pts RR31 Reefer Yellow
1 pt RR20 Caboose Red
9 pts RR70 Roof Brown

Meanwhile, on the beaches of Sicily, the 3rd County of London Yeomanry was assigned a supporting role in the initial landings in the British sector, which were after all primarily an infantry show. The individual squadrons - including "A" Squadron with "Abdiel" - were parceled out among the foot sloggers of 13 Corps for the first few days; but, on June 13, the regiment was assembled for an armoured drive into the Plain of Cantania on the Eastern coast of the island. After three days of fighting, the 3rd CLY, with the Durham Light Infantry, forced a crossing of the Simeto River, the main German defense line covering the Plain, and pushed on to the North. But this success had cost the life of the regimental Commanding Officer, Lt. Col. G.G.L. Willis, DSO; and progress was halted again - a foretaste of the long struggle up the Italian Penninsula.

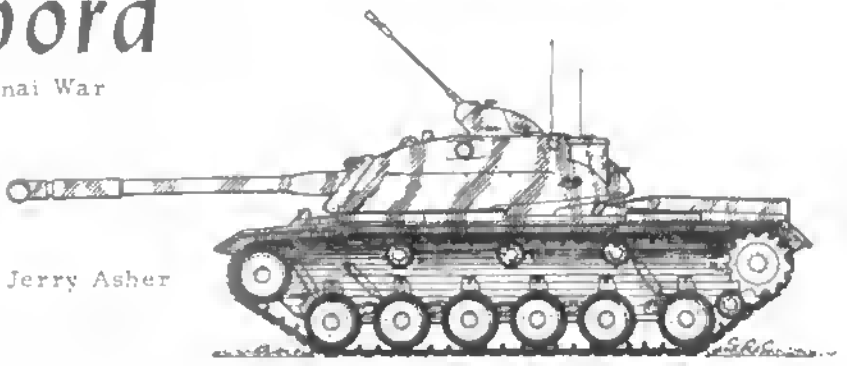
As the Axis forces fell back to the Etna Line, the 3rd CLY was withdrawn from the line, and preparations were made for an outflanking maneuver by sea. Under the watchful eye of the new CO, Lt.Col. A.A. Cameron, the Shermans were loaded aboard landing craft on the night of August 15th. Along with a force of some 400 Commandoes, the 3rd CLY landed at Cape d'Ali on the morning of the 16th in an effort to cut off the retreating Germans, and reach Messina before a certain General Patton arrived there with the American Army. Unfortunately, the Germans under Major General Paul Conrath of the Hermann Göring Panzer Division did not stand still; and by the time the landings were made, they were several miles north of the landing beaches. Throughout the 16th, the small British force dueled with the Axis rear guards, north of the town of Scaletta. By dawn of the 17th, elements of the 3rd CLY had reached Tremestiere, a town 2 miles south of their objective; however, here they were stopped by a blown bridge and it was not until noon that they entered the city of Messina - shortly after General George S. Patton had officially accepted its surrender.



TURRET TOP

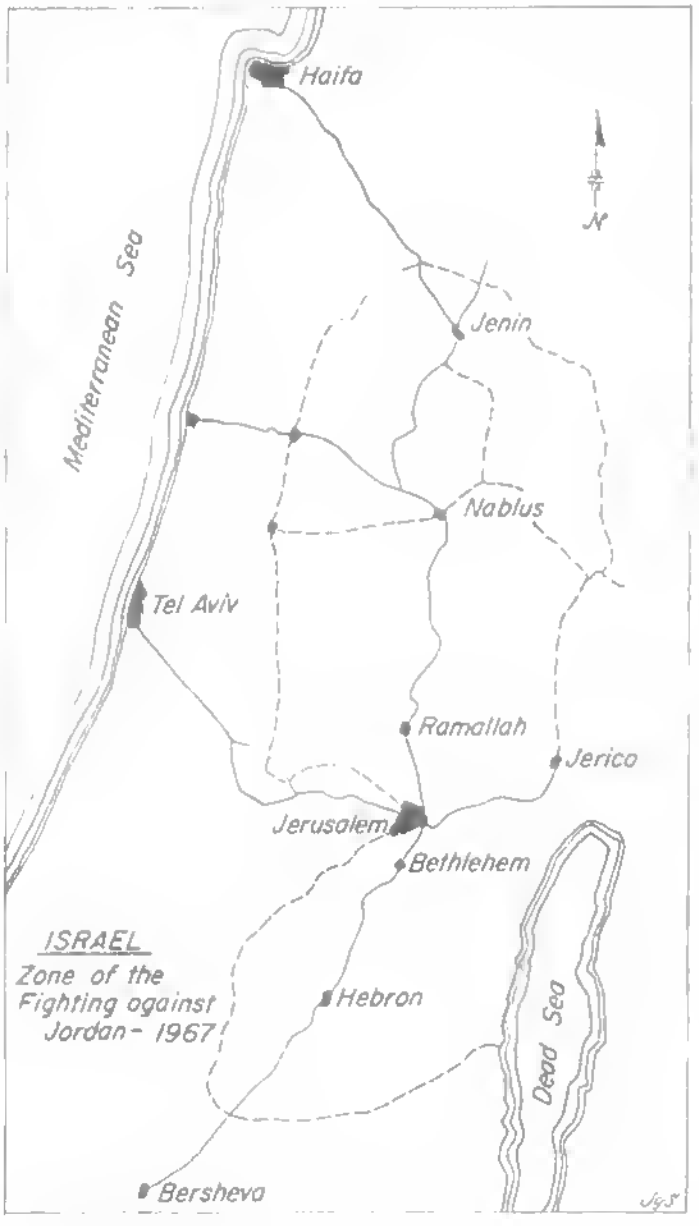
Blunted Sword

Jordanian Armor in the 1967 Sinai War
Part 1.



by Jerry Asher

At the time of the June 1967 campaign, the Jordanian army was in the midst of a substantial expansion that had in fact doubled her armored forces since 1964. Estimated deliveries to Jordan in that three year period included 200-250 M-47 and M-48 "Patton" tanks, 36 self-propelled M-105's, and close to 200 M-113 armored personnel carriers. Prior to these deliveries, the Jordanian army had operated British Centurions (estimates run 50-70) and Charioteers (at one time 40), and many armored cars of the Saracen and Ferret varieties. The Charioteer tanks were bartered to Lebanon, while the Centurions, Saracens, and Ferrets were retained by Jordan.



In addition to the units shown in the Order-of-Battle Table,[1] Jordanian artillery, which on June 5th actually fired the opening rounds of the 1967 campaign against Israel, should be taken into consideration. Some 100-110 guns were deployed, with the Jerusalem area and the western border from south of Kalkiya to Tulkarem being the areas of priority. Less extensive deployments occurred west of Hebron and Jenin.[2]

The 40th and 60th Tank Brigades were each composed of two Battalion's of M-48 "Pattons" (88 "Pattons" in each), and one Battalion of armored infantry (M-113's), accompanied by one Battalion of self-propelled artillery (12-18 M-105's).[3] Independent of these brigades were two or perhaps four Tank Battalions and one independent armor section. The 47th Tank Battalion, with approximately 40 M-47 "Pattons" was in direct support of the 25th Infantry Brigade around Jenin. A second independent Tank Battalion, also equipped with "Pattons" is reported to have been headquartered in Hebron in support of the 29th Infantry Brigade. To the east of Jerusalem, two companies of Centurions, were reported in support of the 27th Infantry Brigade; these companies forming the third independent Tank Battalion. Lastly a Battalion of Centurions were employed with the Royal Guards Brigade. Far to the south at Aqqaba on the coast, a small detachment of tanks were posted.

The only reported offensive action undertaken by Jordanian armor during the conflict was an attack on the Israeli enclave of Mt. Scopus in Jerusalem. On Monday afternoon,

June 5th, Jordanian tanks with artillery support struck the Israeli position. Reportedly three of the tanks were hit by recoiless rifle fire and after a half hour shoot, broke off the attack.[4]

It is interesting to note that Jordanian armor was not used to support the seizure of Government House from the U.N. Command, nor utilized to support and defend that position from Israeli attack. The Israeli's committed two Tank Platoons (Shermans) and carried through from Government House to the village/locale of the Sur Bihar, thus cutting the main north/south road; Jerusalem - Hebron. By nightfall June 5th, the Jordanian 29th Infantry Brigade and its supporting Tank Battalion around Hebron were seriously jeapordized in their land communications with the bulk of the Jordanian army. These two units launched neither probes or counterattacks. Indeed, one Israeli commentator has stated that the Jordanian commander of the Tank Battalion, Major Shams ed-din Ared, deserted his unit, contributing to the Israeli capture of some unscathed "Pattons" 40 hours later.[5]

To the north of the Israeli position of Mt. Scopus, the main armored actions for Jerusalem were fought. At 1240 hours, June 5th, the 60th Tank Brigade was ordered to prepare to move from Jericho to Hebron. Approximately an hour after an Israeli armored brigade crossed the border at 1930 hours, the 60th was directed to send "some" armor to Jerusalem. Thus Israeli and Jordanian armor were racing to control the ridges that controlled the Ramallah - Jerusalem road. The 60th, slowed by Israeli air strikes, lost the race, arriving at 0500 hours, June 6th.

A composite Israeli force of Shermans, Centurions, and AML Armored Cars (with 90mm guns) had secured one flank of the road an hour earlier.

Some 20-30 "Pattons" of the 60th evaded the air strikes and mounted a counterattack which successfully closed to the point that Israeli aircraft could not be used. The ensuing battle raged for three hours. At 0800 hours, the 60th broke off the attack and began retiring toward Jericho. Between 7 and 13 of the 60th's "Pattons" were left behind, casualties to the Israeli gunners.

ORDER OF BATTLE — JORDANIAN ARMY — 5 JUNE 1967

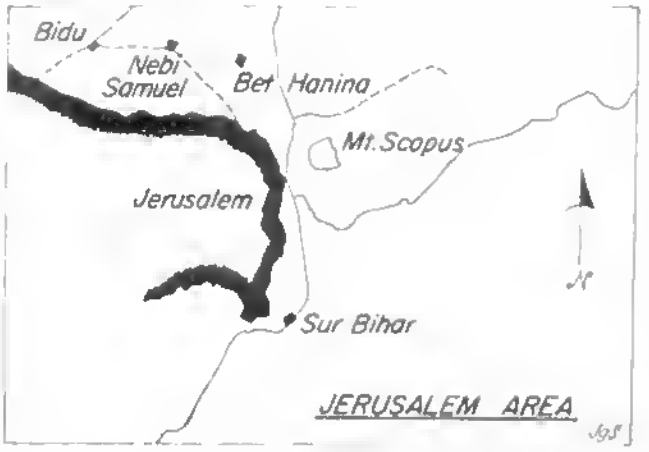
Unit	Local	Commander
Royal Guards Brigade	Amann	
3rd Infantry Brigade	Jerusalem	
25th Infantry Brigade	Jenin	Col. Anwad Mohammed
27th Infantry Brigade	Jerusalem	
29th Infantry Brigade	Hebron	
Infantry Brigade	North end Jordan Valley	
Infantry Brigade	Western Border	
Infantry Brigade	Western Border	
Infantry Brigade	East bank - Ma'an	
40th Tank Brigade	Damish Bridge area	Col. Rakan Anad
60th Tank Brigade	Jericho	Sherif Zeid Chakar

A Jordanian officer commented concerning this battle: "We definitely outfought them. Our men were definitely better trained and disciplined. In the tank battles they shot at our tanks with regular high explosive shells, whereas we fired armor-piercing shells at them." In that AML Armored Cars equipped with 90mm guns were part of the Israeli force, this officer may have been referring to the HEAT shell that vehicle uses.[6]

The control of the ridges to the north of Jerusalem assured the capture of the city to the Israeli's. The Israeli Armored Brigade, in moving south to link up with Israeli paratroopers engaged on the northern outskirts of Jerusalem, encountered three Jordanian "Pattons" at Tel el Ful which they knocked out. These "Pattons" could have been from the 60th, representing a rear guard section, or from the Royal Guards Brigade, as Tel el Ful was to be the site of King Husselin's summer palace and construction work had already begun.

The 60th Tank Brigade launched a second counterattack later that afternoon and night. However Israeli air strikes broke up this effort before a second tank battle could begin. One of the Israeli citations for valor went to a pilot of a Fouga "Magister" (Major Arjeh Ben Or) for leading flights to knock out seven Jordanian tanks on the Jericho road.

King Husselin indicated that the 60th was withdrawn to the east bank of Jordan by Tuesday afternoon, 6 June, and that it had "only 6 tanks left". Israeli commentators however, report that at 1000 hours, 7 June, some 20 "Pattons" were in a defensive position in a banana plantation west of Jericho. Fifteen of these "Pattons" were abandoned by the time Israeli armored forces came into contact at 1800 hours, 7 June. S.L.A. Marshall indicates that Jordanian self propelled artillery was



also utilized in the unsuccessful defense of Jericho.

This writer has found no comment concerning the Jordanian Centurions, originally mentioned as being in reserve near Jerusalem. However in one of the enumerable Israeli produced pictorial volumes, five captured Centurions are pictured with a caption indicating they were taken in or near Jericho.[7]

With the fall of Jericho, Jordanian armor actions were at an end in the southern portion of the West Bank.

Footnotes & References

1. Information for the Order-of-Battle Table was taken from several sources. The 3rd, 25th, 27th Infantry Brigades was taken from Hussein of Jordan, My "War" with Israel, by Vance and Laur, William Morrow and Co., Inc., New York, 1968. Royal Guards Brigade is from Middle East Politics: The Military Dimension by J.C. Hurewitz, Praeger, New York, 1969 and From War to War, Nadav Safran, Pegasus, New York, 1969. As to the Centurions being used by the Royal Guards Brigade, that is a deduction on my part. The 29th Infantry Brigade was from The Sandstorm, Kimche and Bawly, Stein and Day, New York 1968. The unnumbered brigades and locations are from IDF publications with the exception of the unit on the east bank which is from Safran.

2. By taking the IDF figures of 150 artillery pieces, the known location of the "Long Toms", photos of captured artillery pieces, and checking Atlases for the Israeli towns shelled, these are my conclusions.

3. I assigned the SP M-105's to the Tank Brigades on the basis of their being mentioned in defense of Jericho (Marshall-Swift Sword) and a picture in an IDF publication. These locals were areas defended by the 40th and 60th Tank Brigades.

4. I am doubtful this tank attack took place at all. The IDF commentaries show great concern over Mt. Scopus and mention that it was receiving shell fire. However, they do not mention a direct assault. Sanche De Gramonts article first appeared in the Saturday Evening Post, August 12, 1967, and was reprinted in Under Fire, Donald Robinson, editor, W.W. Norton Co., Inc., New York 1968.

5. Kimche and Bawly, The Sandstorm, page 200.

6. Lightning Out of Israel, by the Associated Press, 1967, page 92.

7. See Israel at War; by E. Ered, editor, Hasbara Ltd., Tel Aiv, 1967.

SUPER HELLCAT

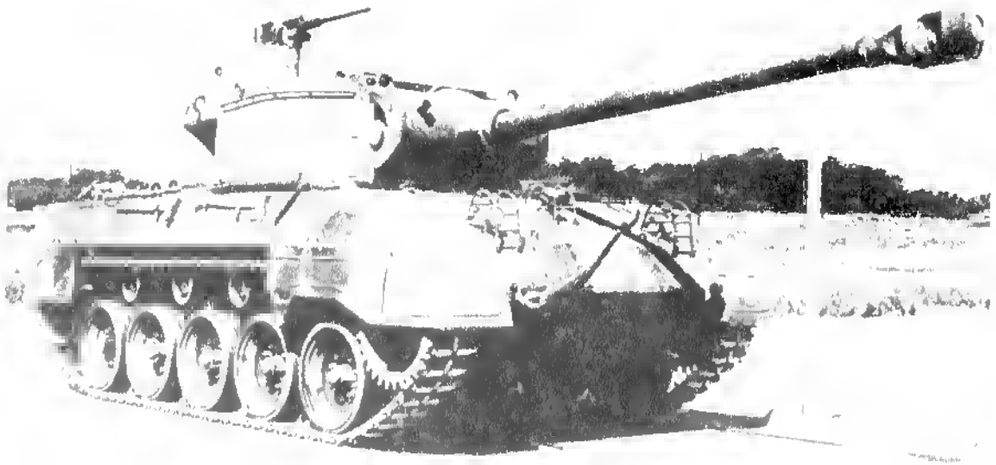
by Jim Garrison

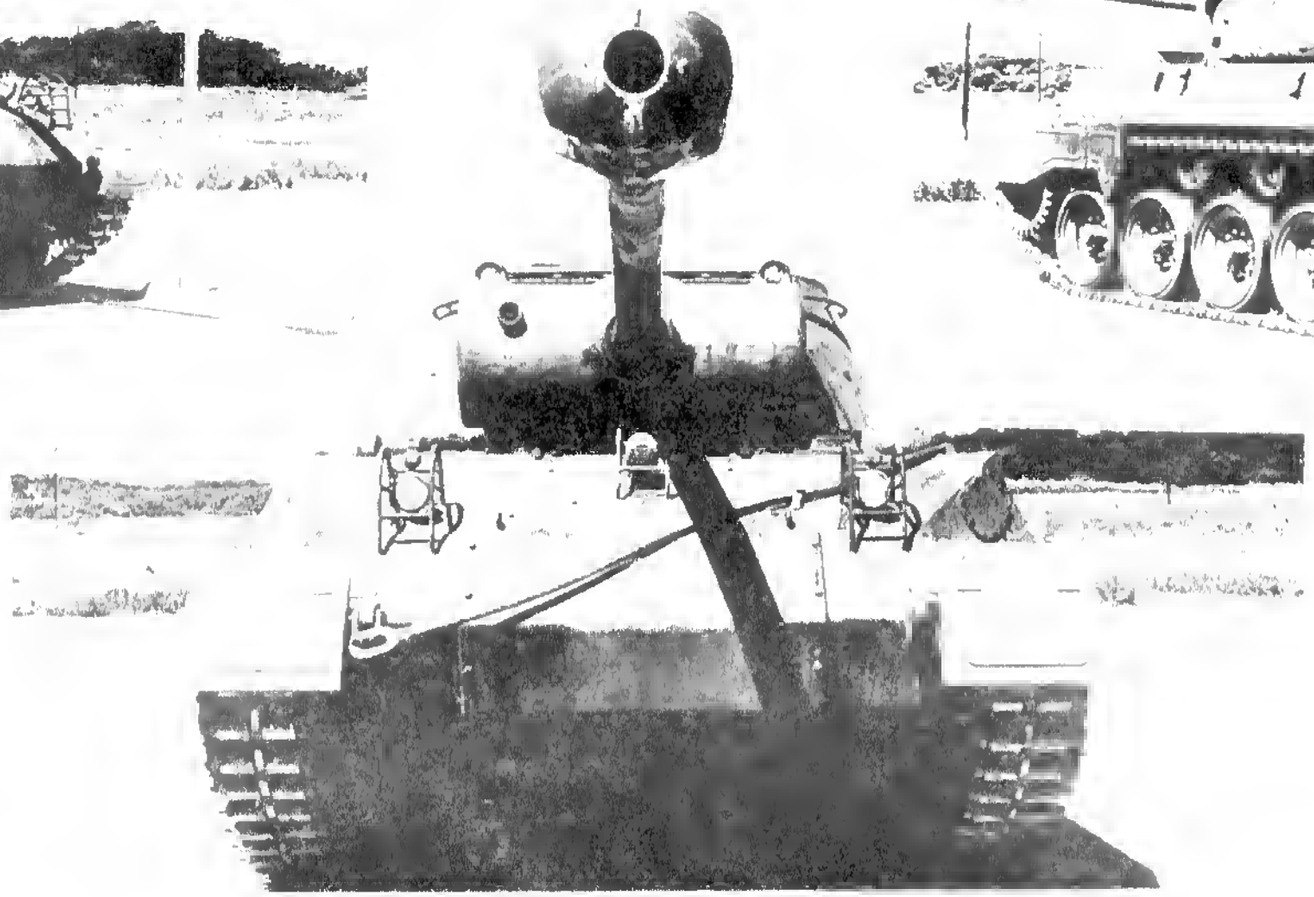
"First: Gun Power. Second: Battlefield Maneuverability. Third: as much armor protection as can be had after meeting the first two requirements, still staying within a weight that can be gotten across obstacles with our bridge equipment." This was the answer given by Major General Ernest H. Harmon, commander of the 2nd Armored Division, when asked the qualities needed in future armored vehicles. By late 1944 it was realized that the most successful weapon in the U.S. arensal was the 90mm gun M-3 as was mounted in the M-36 tank destroyer and the M-26 tank then entering production. However, early in 1945, it was decided to develop a replacement for the M-36 Gun Motor Carriage (GMC). The idea was to provide the 90mm gun with a carriage "which would have high top speed and good maneuverability, as well as suitable durability." Of course, the most suitable chassis for these requirements was that of the M-18 "Hellcat".

During the frantic months of 1940, when the Sherman series of vehicles were designed, some one in the Ordnance Department had had enough foresight to include a turret ring large enough to accept bigger weapons than the proposed 75mm gun. Thus the Americans were never forced to design new vehicles in order to keep pace with the need for increased firepower. The same 69 inch turret ring was found on the M-4 series of medium tanks, the M-6 and M-26 heavy tanks, the M-10 M-18, and M-36 tank destroyers, and most of the expiremental vehicles designed after the Sherman. Because these turrets were virtually interchangeable, it was not hard to find the right combination of gun and chassis for any requirement. And so the 90mm "Super Hellcat".

In June of 1945 tests were conducted at Aberdeen to determine the suitability of mounting the M-36 turret on the chassis of the "Hellcat". It was found that the turret basket floor would have to be raised two inches to fit the lower profile chassis of the M-18, and a bit of internal rearranging would be required. Additionally, two inches would have to be trimmed from the hatches for them to be opened with the gun in the forward position. The extra weight of the M-36 turret added 3000 pounds to that of the standard "Hellcat" (see data table for details of the standard M-18); and thus shifted the vehicles center of gravity to the rear, which was slightly lower as a result, giving it the appearance of a cat ready to spring. Because the vehicle was still very light, it was necessary to install a muzzle brake on the 90mm. When firing tests were conducted, it was found that with the vehicle's brakes were released firing to the front caused it to roll backwards 3/4 of an inch; but, without a muzzle brake, the 90mm's recoil catapulted the "Hellcat" 22 inches to the rear.

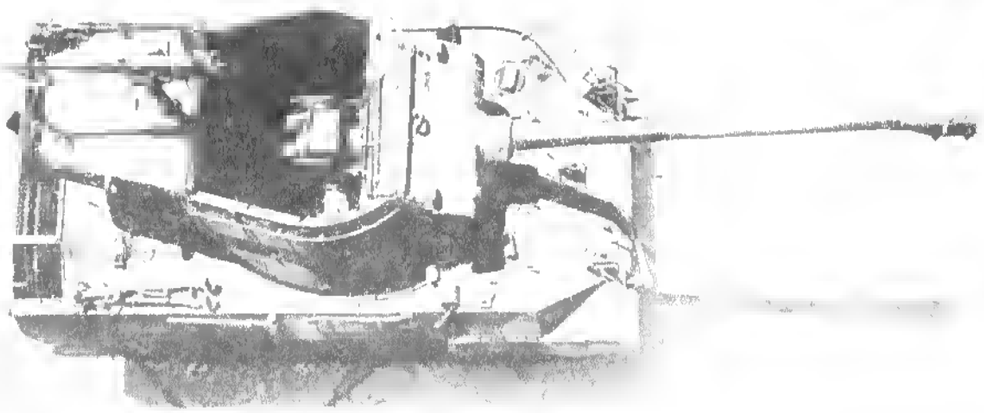
As a result of the above tests it was concluded that the necessary modifications could be accomplished in the field; however, for some reason no designation was ever given to this vehicle. As the war ended, development of the 90mm GMC M-18 was halted along with other projects. It is interesting to speculate that, had the Tank Destroyer Force had this vehicle, perhaps it would have survived.

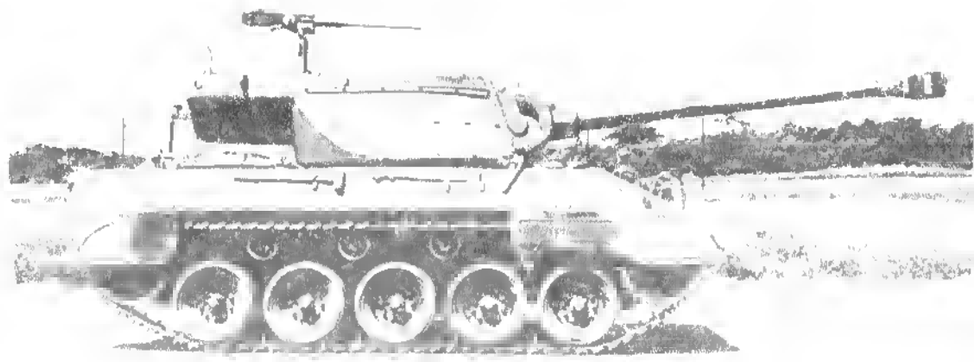




The Super Hellcat

with 90mm Gun





COURTESY OF HUNNICUTT COLLECTION

TECHNICAL DATA: 76mm GUN MOTOR CARRIAGE, M18 HELLCAT

MANUFACTURER: Buick Motor Division
General Motors Corporation

NUMBER PRODUCED: 2,507

ENGINE:
- Manufacturer: Continental
- Model: R 975 C1* or R 975 C4
- Fuel: 80 octane gasoline
- Number of cylinders: 9
- Type: Radial
- Displacement: 973 cu. in.
- Maximum recommended RPM: 2400
- Horsepower: 400
- Carburetor: Stromberg R-9-D
- Ignition: Magneto (dual ignition)
- Starter: Electric, 24 volt
- Cooling system: Air cooled

TRANSMISSION:
- Type: Torqumatic
- Speeds:
  - Forward: 3
  - Reverse: 1

VISION AND FIRE CONTROL EQUIPMENT:
- 2 Periscope, M6
- 1 Periscope, M4 or M4A1 with telescope M47 or M47A2
- 1 Telescope M76C or M70H
- 1 Telescope mount, M55
- 1 Elevation quadrant, M9
- 1 Azimuth indicator, M20 or M18

ARMAMENT:
- 1 76mm Gun M1A1 or M1A1 in mount M1
  - Elevation: -10° to +19-1/2°
  - Traverse: 360°
- 1 Cal. .50 machine gun in ring mount
- 1 Tripod mount, Cal. .50, M3
- 5 Cal. .30 carbines, M1

AMMUNITION STOWAGE
- 76mm (APC., M62; AP., M79; HE., M42A1; Smoke, M88): 45 rounds
- Cal. .50 machine gun: 840 rounds
- Cal. .30 carbine: 460 rounds
- Hand grenades, fragmentation Mk II: 6
- Hand grenades, WP smoke M8: 6
- Smoke pots: 4

SUSPENSION:
- Type: Torsion bar
- Bogie wheels: 5 per side
- Tires: Dual 26x4-1/4

TRACKS:

Width:	
T69 steel ** (inches)	14.38
T85E1 (inches)	21
Ground contact length (inches)	116.5
Tread (center to center of tracks) inches	94.6
Number of shoes (per side)	83

DIMENSIONS:

Weight:	
Loaded (pounds)	37,900
Empty (pounds)	34,980
Maximum cargo load (pounds)	2,980
Width (inches)	112
Height (inches)	101-7/16
Length:	
With barrel (inches)	262
Chassis (inches)	208-3/4
Ground clearence (inches)	14-1/4

ARMOR:

Hull:	
Front, sides and rear (inches)	1/2
Top	5/16
Bottom	1/4
Turret:	
Front (inches)	3/4 to 1
Sides and rear (inches)	1/2

PERFORMANCE:

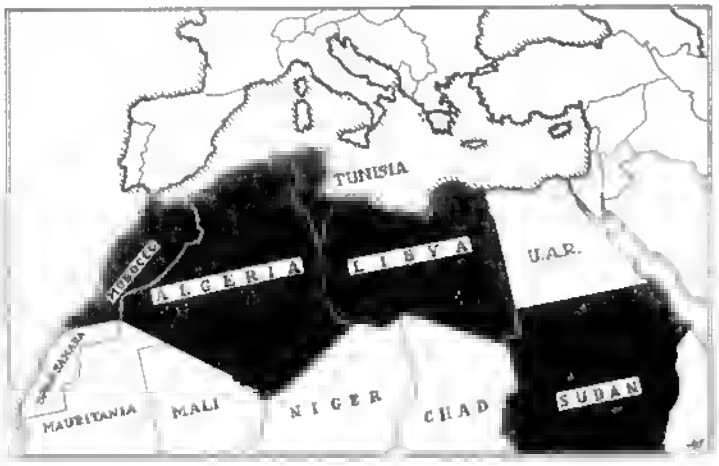
Speed	50mph***
Speed on 10% grade	15mph
Maximum grade ability	60%**** slope 31°
Vertical obstacle	36 inches
Trench crossing ability	74 inches
Fording depth (unprepared, at slowest forward speed)	48 inches
Turning radius	33 feet
Fuel capacity (U.S.)	169 gal.
Fuel consumption (average conditions)	0.6 mi./gal.
Cruising range:	
Average conditions	105 miles
Maximum	150 miles

* Engine details are for the R 975 C1 engine.

** All details given in the table are for vehicle with the 1b in the T69 steel track

*** Several sources list the speed of the M18 at 55mph.

**** This figure is valid only for vehicles with the modified transmission

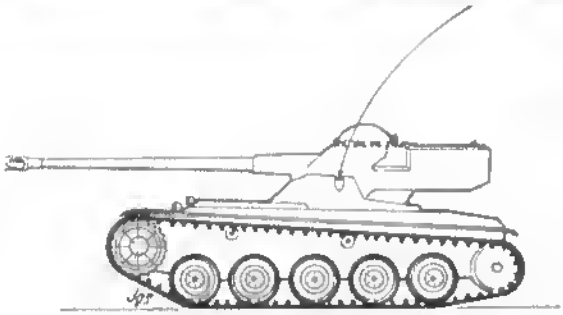


ARMOR G-2

Current Data on the World's Armored Forces.

Armor of the Arab Nations; Part 1

by J. C. Johns



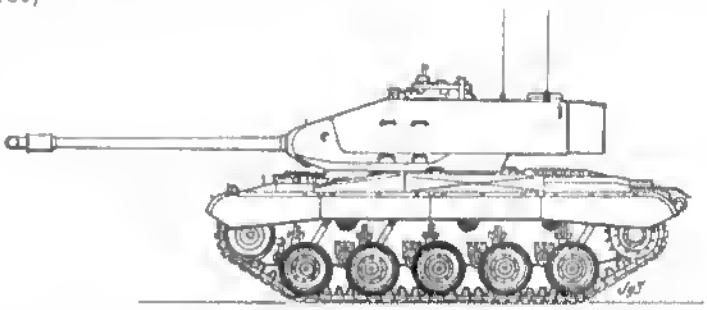
AMX-13 Light Tank, 76mm Gun, ex-French

MOROCCO - Armed Forces: 54,000 men

40	AMX-13 Light Tanks, 76mm Gun (ex-French)
70	T34/85 and T54 Medium Tanks (ex-Soviet)
40	M56 SP 90mm AT Gun (ex-U.S.)
some	SU-100 Self-Propelled Guns (ex-Soviet)
some	EBR-75 and Panhard Armd. Cars (ex-French)

ALGERIA - Armed Forces: 57,000 men

350	T34/85, T54, and T55 Medium Tanks (ex-Soviet)
150	BTR-152 Armd. Personnel Carriers (ex-Soviet)
10	SU-152 Self-Propelled Guns (ex-Soviet)
some	AMX-13 Light Tanks, 76mm Gun (ex-French)
some	SU-100 Self-Propelled Guns (ex-Soviet)
some	AML Armored Cars (ex-French)(in service with French supplied Gendarmerie)



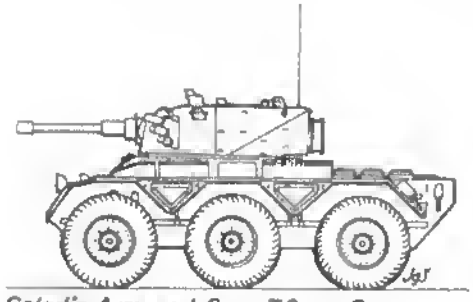
M41 Light Tank, 76mm Gun, ex-U.S.

TUNISIA - Armed Forces: 17,000 men

20	M-41 Walker Bulldog Light Tanks (ex-U.S.)
20	AMX-13 Light Tanks, 76mm Gun (ex-French)
some	Panhard Armd. Cars (ex-French)

LIBYA - Armed Forces: 8,000 men

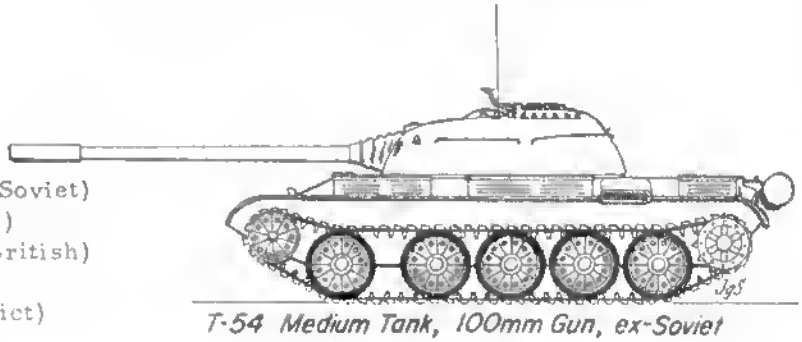
10	Centurion Tanks (early Models)(ex-British)
some	Saracen Armored Personnel Carriers (ex-British)
some	Saladin Armored Cars (ex-British)
	An order for 188 British Chieftain Tanks is awaiting confirmation. If this is withdrawn, French AMX-13 Light Tanks will probably be substituted.



Saladin Armored Car, 76mm Gun, ex-British

SUDAN - Armed Forces: 18,000 men

20	T-34/85 Medium Tanks (ex-Soviet)
30	M4 Sherman Tanks (ex-U.S.)
14	Saladin Armored Cars (ex-British)
10 or more	T-54 Medium Tanks (ex-Soviet)



T-54 Medium Tank, 100mm Gun, ex-Soviet

Panzerjäger auf PzKw I Ausf B

by James G. Steuard

When the war started in 1939, German anti-tank equipment and tactical doctrine were in their most formulative period of development. While anti-tank personnel of the infantry branch were very satisfied with the then current 3.7cm. PAK 35/36, certain influential officers in the High Command forsaw a requirement for larger and more powerful guns and more mobile chassis for these weapons. In the eyes of these officers, the "towed" ant -tank gun was not a flexible weapon; it took far too long to emplace it, or to move it to a new location.

The first self-propelled anti-tank gun of the German Wehrmacht was the 4.7cm. PAK(t)(Sfl.) auf Pz.Kw I., Ausf. B. This first vehicle was an experimental "prototype", designed to cheaply test and evaluate mobile anti-tank gun theories; if the concepts proved valid, more money and time could be spent to produce more advanced and highly developed weapons.

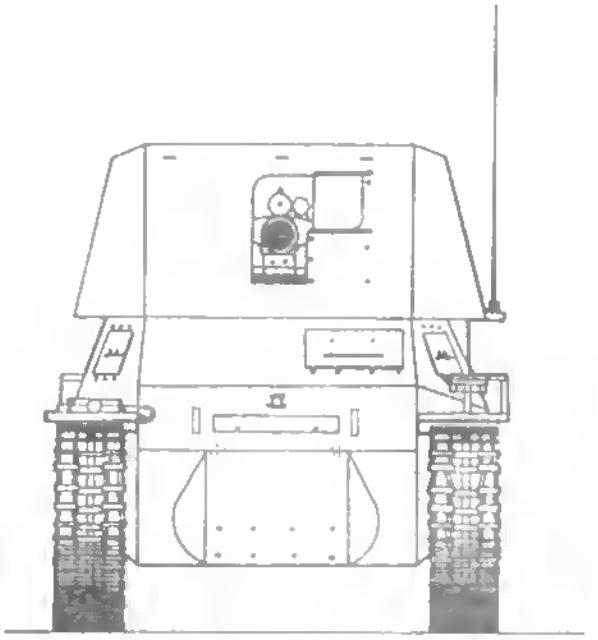
The chassis that was used to create the "Panzerjager Ib" was the surplus chassis of the Panzerkampfwagen I light tank, the first tank of the new German Army. By 1939, this light tank was obsolete, since it was underpowered, undergunned (with 2 light machine guns) and with inadequate armor, when compared to other nation's tanks. However, this tank was still in use in Panzer Divisions, as the actual number of replacement vehicles was far below the urgent needs of the new expanding combat divisions. With the advent of larger numbers of Panzer III and Panzer IV tanks, the older Panzer I's could slowly be replaced. The surplus obsolete chassis were used in several roles: as driver training vehicles for armored units (used by the NSKK), as ammunition carriers, and as a chassis for the 15cm. Schwere Infanterie Geschutz 33 (heavy infantry gun), in addition to the Panzerjager (tank hunter) version. In converting this obsolete light tank into a self-propelled anti-tank gun the turret was simply removed, and the apature for the turret ring enlarged. This left the Panzerjager Ib with a performance almost identical to that of the tank, i.e. a top speed of 22mph and a road range of 75 miles on the available fuel.

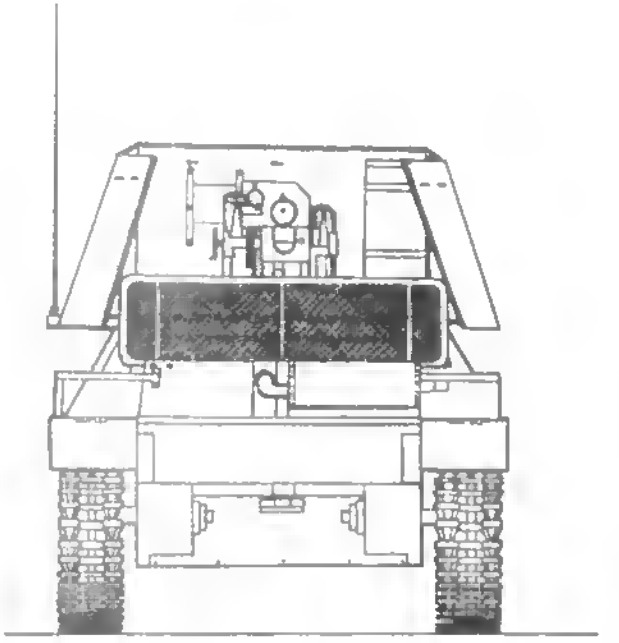
In choosing a gun to use in their first self-propelled anti-tank vehicle, the Germans could have used their 3.7cm. PAK 35/36; the standard infantry anti-tank piece in 1937-1940. The fact that the Germans did not use this weapon was due to several diverse reasons. First, all available 3.7cm. guns were urgently being used to equip the expanding anti-tank units in Infantry Divisions. Secondly, it had already become apparent to German weapons designers that the 3.7cm. gun was fast becoming obsolete. Why equip a new self-propelled mount with an inadequate weapon, when a superior substitute was available? The 4.7cm. Czech anti-tank gun was a Skoda product, and this weapon had been furnished to the Czech Army in some quantity, prior to the "annexation" of Czechoslovakia by the Germans. The performance of this foreign gun had certainly impressed the German designers. In comparison to the 3.7cm. PAK 35/36, which shot a 1.5 pound AP projectile at a muzzle velocity of 2500 feet per second, the 4.7cm. PAK(t) fired a 3.7 pound steel shot at a muzzle velocity of 2544 feet per second. Not only was the muzzle velocity increased, but the Czech weapon "threw" an AP shell almost three times heavier than the German gun. Thus, it was a simple solution to use a "captured" Czech weapon which offered increased performance, and which was available in quantity from Czech arsenals. The Czech gun was mounted on the Panzer Ib superstructure with few modifications the trails were cut down, the wheels were removed, and the gun shield was replaced by a high angular superstructure which offered increased protection to the 2-man gun crew.

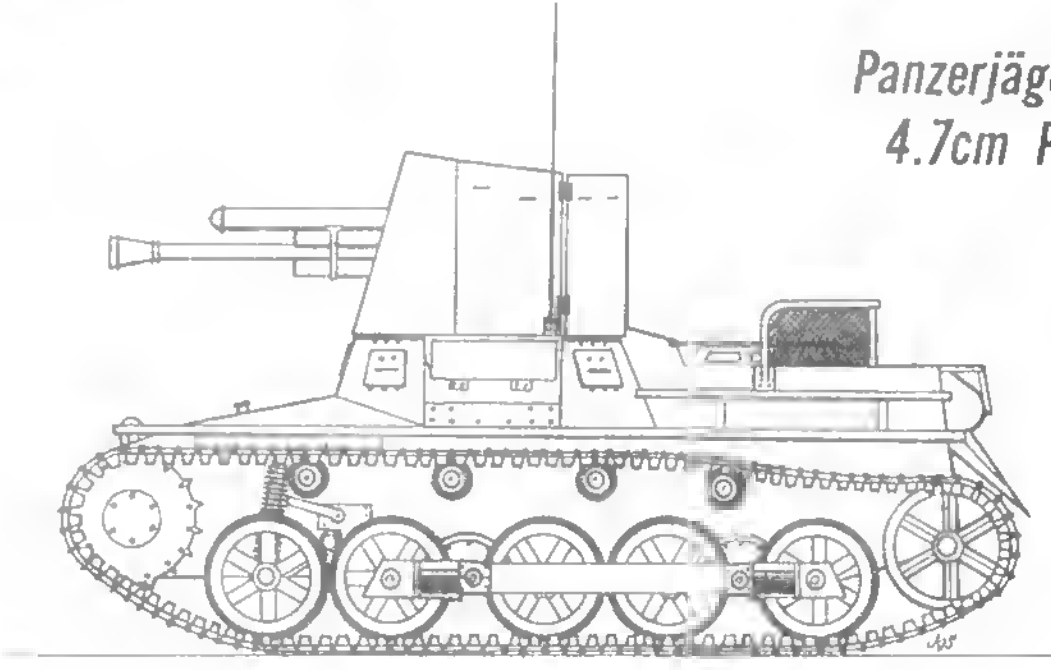
German order-of-battle records indicate that none of the new self-propelled guns were available for use in the Polish campaign. Four anti-tank battalions were formed and trained, and these units were ready in time for the May 1940 French campaign. These units were:

Panzerjager-Abteilung 521
Panzerjager-Abteilung 616
Panzerjager-Abteilung 643
Panzerjager-Abteilung 670

Each of these battalions was formed with a headquarters Company and three Panzerjager-Kompanien. Each of the three anti-tank battalions was fully equipped with 18 of the Panzerjager Ib's; three companies of six guns each. All units saw combat during the French campaign and their experiences indicated the value of a self-propelled anti-tank gun, which could rapidly move from position to position to defeat enemy armor.







Panzerjäger Ib. mit 4.7cm PAK (t)

drawn by: J. Steuard

scale: 1:32

Wargame Review

Sand Table Terrain
by Gary Gygax

There are a number of hints that are worthwhile knowing before you set about preparing your sand table for a battle. There are a number of items that are standard, most of which are reusable, to help you create varied and realistic scenery, and their cost is only a few dollars plus a little work. While most of them aren't absolutely necessary, you'll find that having them will make your games more enjoyable and preparing for them simpler.

Clear blue plastic -- water (blue acetate sheets can be purchased in most
Lichen -- shrubs and brush
Plastic pine trees
Shade trees, fruit trees (for orchards), and evergreens
Model grass and earth
A toy sprinkling can (try the dime store)
Varied sized pieces of shale (if you live in a section where you can't just go out and pick it up, but it from an aquarium supply store)
Twigs -- to serve as dead trees, wind falls, logs, etc,
Pebbles -- for rocks and boulders
Fine black dirt -- asphalt for metaled roads
Three jars with multiple holes punched in their lids -- these will be your shakers for grass, earth, and dirt
Scraps of lumber in various sizes and shapes

Before I continue I wish to mention the use of mineral oil to keep the sand workable. Don't use it! The convenience gained from not having to wet down the sand is more than outweighed by the nasty, oily stuif that you'll find adhering to your models, sticking to your fingers and hands, and fouling your apparel! Water is best.

Thoroughly wet down the sand, but don't over-moisten it. As you are watering the sand, plow it up to make certain that it gets damp all the way to the bottom. Dry sand will soak up a lot of water but you will eventually get it all nicely damp. When the sand is easily shaped and holds together well, it is at the correct consistency. Sand that is too wet will spoil things, so it is a good idea to take care of this initial dowsing a day or two ahead of time. While the water is soaking in, you will have time to plan out what kind of terrain you will make and prepare a rough sketch -- make it rough, for the finished landscape oftens differs considerably from the original conception.

It is now time to begin the masterful creation. First, scoop out areas where hills and ridges will be. In the dug out spots, pyramid some pieces of scrap lumber so that they generally resemble the shape of the elevation and represent about 2/3 of its projected volume. Pile the sand back over the boards. Next, dig river beds with a piece of lumber slightly wider than the strips of plastic that will go into the channel. Leave a little sand at the bottom, and heaps of it at the edges. The river can be curved by simply overlapping the strips to compensate for bends. Most rivers will he over three or four inches wide, and this makes it easy. When the plastic is in place, hold it there by placing the edge of one hand along one of its edges. Use the other hand to press the heaped sand along one of its edges. Use the other hand to press the heaped sand along the banks so that it just covers the edge of the strip. Do the same on the other side, and then mold the banks to the correct height and grade. Surplus sand is added to elevations. All other bodies of water are made in the same manner, from ponds to seacoasts invasion beaches. Gullies and ravines look best when made by several fingers of the whole hand, as you'll want irregular sides and general appearance. Make them both deeper and steeper than they will be when the game is played, for all terrain will be "naturalized" later with the sprinkling can.

Now dig your sheer rock cliffs into the unfinished hills and ridges, and imbed stones well into river banks and elsewhere. Use a piece of board to scrape roadways. Place bridges down, and make culverts if necessary. If there is to be a rail road embankment, mound it up also, and work the track sections down into the sand so that the ties cannot be seen. Pat all elevations down firm, but be sure to leave steep sides.

(Continued on Page 28)

Seek, Strike and Destroy

TANK DESTROYER FORCE
A black, red, and white Cougar crunching a black track, all in an orange circle edged in black.

Habits die hard, but, as the last ships fled the beaches of Dunkirk dodging the droves of Stukas, it could no longer be denied that the tank had become the dominantfactor in land warfare. Meanwhile, in America where the "Brass" were busy planning a rehash of 1918, it was suddenly realized that stopping an armored Blitzkrieg was now the Army's number one problem. Their answer to the iron juggernaut was the Tank Destroyer Command. The development of the Tank Destroyer concept was traced in Part I of this series (AFV - G2", Vol. II, No. 9) and the hardware was covered in Part II (Vol. II, No. 11). Now let us look at the way the concept and weapons were bonded together. In short, the Organization of a Tank Destroyer unit.

The basic unit of the Tank Destroyer Command was the battalion; and, after some initial trial-and-error, a plan for a self-propelled battalion was developed. This called for a Headquarters Company, a Reconnaissance Company, and three Gun Companies (A, B & C). Reflecting in its composition the basic concepts of the new Command, mobility, firepower and independence - the battalion was one of the heavily armed and completely motorized formations in the Army. Its 787 officers and men controlled 36 powerful M-36 Tank Destroyers, 6 sleek M-8 Armored Cars, and over two dozen M-20 Armored Utility Cars - to say nothing of the soft skin vehicles.

In combat, the Battalion was divided into forward and rear echelons. The rear echelon consisted of the HQ section of Headquarters Company, the Battalion Supply Section, the Battalion Personnel Section (including the clerks from the other companies), the Transportation Platoon with the supply sections and field kitchens from the other companies attached, and the Headquarters Company motor maintenance section. Since the battalion was to operate semi-independently, the rear echelon needed this strong administrative and supply component. The combat elements were often called upon to support several different units at the same time - occassionally attached down to the section level - and the rear troops had their work cutout for them getting supplies up to the guns. During operations the rear echelon could usually be found near the HQ of the unit to which the battalion had been assigned and the supply facilities of the larger unit were used as much as possible.

The forward or combat echelon was comprised of the Battalion Command Post, the Battalion Motor Maintenance Platoon, the medical detachment, the Reconnaissance Company, and the three Gun Companies. Since these elements were often assigned separately and operated independently we will examine each in turn in some detail.

The Battalion Command Post and the Motor Maintenance Platoon were usually located together in a concealed position to the rear of the gun companies, but close enough to them to exercise control and render support. The "CP" and its message center were the means by which the Battalion Commander and his staff maintained contact with the often scattered companies. The Motor Maintenance Platoon handled those mechanical breakdowns beyond the capabilities of the individual company maintenance sections. The medical detachment, complete with surgeon, was located near the "CP".

The Reconnaissance Company consisted of a Company Command Post, a Maintenance Section, a Pioneer Platoon, and three Reconnaissance Platoons. It had the mission of selecting routes of march, prospective positions, and location of the enemy. The three Reconnaissance Platoons were often attached to individual Gun Companies (as shown in the diagram) and their equipment consisted of 2 M-8 Armored Cars and 5 jeeps. The Pioneer Platoon was equipped with 1 M-20, a truck-mounted air compressor and four 1 1/2 ton trucks. These were to assist the Gun Companies emplace their vehicles and to create and demolish obstacles.

The Gun Company contained a Command Post, a Company Maintenance Section, and three Gun Platoons. The complete company, 5 officers and 130 men, is shown in the accompanying chart (which also shows a Recon Platoon attached to, but not part of the company). The basic fighting

U.S. ARMY TANK DESTROYER
GUN COMPANY 1944-45

COMPANY HEADQUARTERS

1 Recon. Sgt.	1 Sergeant	1 2nd Lieutenant	1 Captain C.O.
1 EM Gunner	1 Supply Sgt.	1 EM Co. Clerk	1 Radio Sgt.
1 EM Driver	1 EM Ammunition	1 EM Messenger	1 EM Driver
	1 EM Driver	1 EM Driver	

SUPPLY AND MAINTENANCE

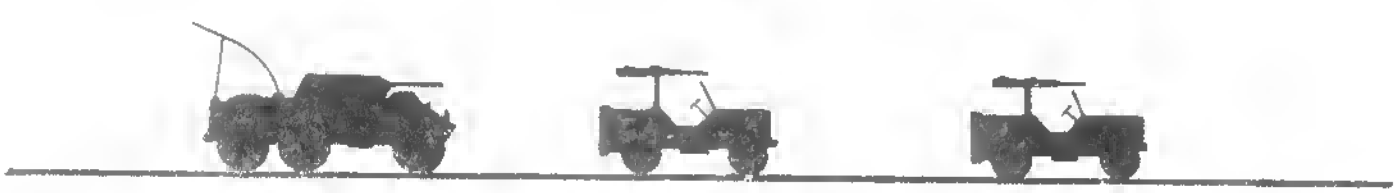
1 Mess Sergeant	1 Maint. Sgt.	1 Motor Sgt.
3 EM Cooks	2 EM Mechanics	2 EM Mechanics
3 EM Cook Helpers	1 EM Radio Repair	
1 EM Driver	2 EM Drivers	

RECONNAISSANCE PLATOON

First Section

1 Lt. Platoon C.O.	1 EM Gunner	1 EM Gunner	1 Master Sgt.
1 EM Gunner	1 EM Driver	1 EM Driver	1 EM Driver
1 EM Messenger	1 EM Radiomen	1 EM Radiomen	
1 EM Driver			

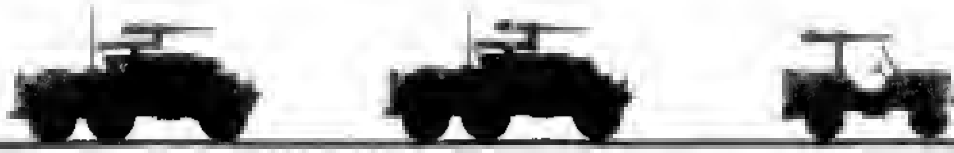
Second Section



1 Platoon Sgt.	1 EM Gunner	1 EM Gunner
1 EM Gunner	1 EM Driver	1 EM Driver
1 EM Messenger	1 EM Radiomen	1 EM Radiomen
1 EM Driver		

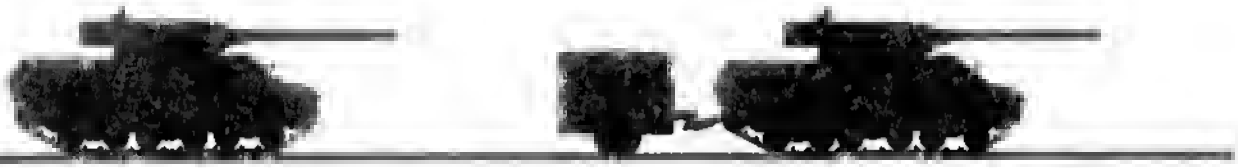
TANK DESTROYER GUN PLATOON

Security Section



1 Corporal	1 Sergeant	1 1st. Lt. Platoon C.O.
1 EM Gunner	1 EM Gunner	1 Platoon Sergeant
1 EM Rifleman	1 EM Rifleman	1 EM Rifleman /
1 EM Driver	1 EM Driver	Driver

GUN SECTION



1 Sergeant	1 Sergeant
1 EM Gunner	1 EM Gunner
2 EM Cannoneers	2 EM Cannoneers
1 EM Driver	1 EM Driver

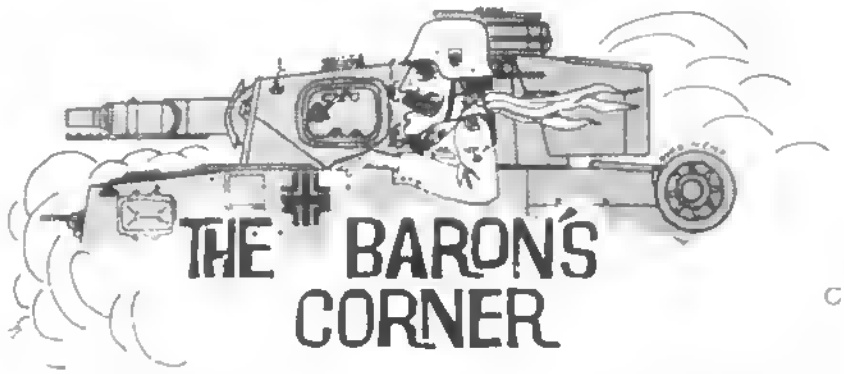
GUN SECTION

1 Sergeant	1 Sergeant
1 EM Gunner	1 EM Gunner
2 EM Cannoneers	2 EM Cannoneers
1 EM Driver	1 EM Driver

NOTE: Second and Third Platoons are same as First Platoon.

unit of the Gun Company - or, for that matter, of the battalion - was the gun platoon. This was divided into two Gun Sections of two M-36 Tank Destroyers each, and a Security Section. The Security Section provided additional reconnaissance capability with its M-20 Armored Utilities and also mobile outposts for the gun sections. However, the section's most important function was to provide protection from hostile infantry for the vulnerable gun sections. By dismounting the .50 cal. machine guns from the M-20's and with the rifles and bazooka carried in each vehicle, the section could establish a powerful base of fire.

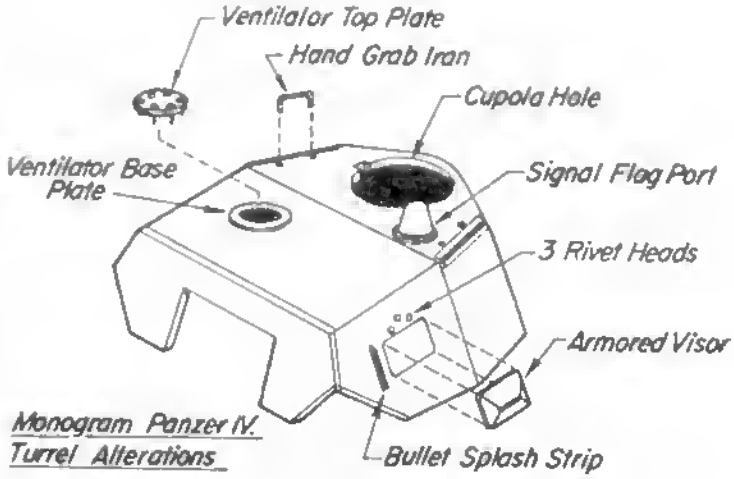
With this organization a Tank Destroyer Battalion became a powerful formation, strong in firepower and mobility, and ready to "SEEK STRIKE AND DESTROY" enemy armor.



THE BARON'S CORNER

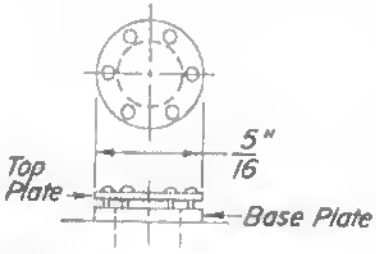
Conversions to Monogram's "Panzer IV"
by Norb Meyer

With the heavy reader interest in German vehicles, and the Monogram "Panzer IV" being the cheapest of the large kits on the market, we thought an article on converting this model to an earlier version would be in order. Many readers are interested in modeling the early 1940-1941 versions of this famous tank, and such a conversion is really not complicated. In this article, we will concern ourselves with converting the turret backwards to the earlier versions. The turret is basically correct in size and shape; there are some minor errors but unless you're an "absolute" perfectionist, these really don't matter. In performing our conversion, some basic tools will be needed for the "operations". An X-acto razor saw (large depth) is a must for some of the surgery we must do. Some medium grade sandpaper and a sheet of flint paper, combined with a flat surface will also be needed. It would also be a good idea to acquire a few large emery boards. (If you can "borrow" these from a wife, mother or girl friend. Personally, I find it rather embarrassing to explain to the sales girl at the cosmetic counter why I need them!)



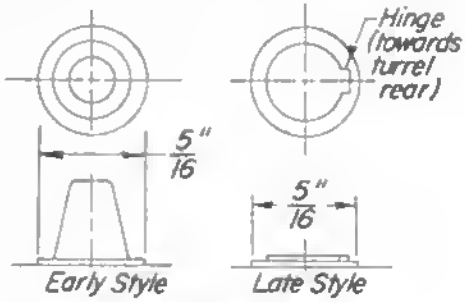
Monogram Panzer IV. Turret Alterations

In starting our conversion, first and foremost, all the detail must be removed from the turret top. Remove the blob of plastic on the top that represents the air exhaust outlet. You will find that the remaining large round hole will come in handy for the superdetailing (later). This operation should be done with the razor saw, being careful to keep it fairly level. Once finished with this, and uttering the first of many sighs of relief, start removing all of the remaining detail from the top most part of the turret roof, including the semi-circular ring in front of the cupola hole. You will probably use the emery boards (or a fine flat file) as your main tool for this surgery.



Turret Ventilator
Not to scale

When completed with the turret roof, sand or file off all of the detail on the turret sides where the "escape" doors will fit. Do not sand any other areas on the turret sides! Now, using your trusty putty (we used "Green Stuff") fill in all of the extraneous holes in the turret roof. Use small strips of sheet styrene, glued beneath any of the larger holes to support the "wet" putty until it drys. This simple trick will eliminate the usual "sag" of the putty into the hole. These "reinforcements" will not be seen when the turret is completed. There is one hole that is on the right side of the turret roof; this can be filled using a round piece of sprue glued into the hole. This can then be sanded down after the glue has dried. Do not fill the circular hole where the air exhaust was; also do not fill in the hole near the cupola that was used as a signal flag port. When all the putty has dried, and the turret roof sanded smooth, you will have the basic turret for all varients of the Panzer IV.!



Panzer IV. Signal Flag Port

The details that should be added to the turret top (common to all Pz.IV varients) are: 1) the air exhaust cover, 2) the signal flag port, and 3) the hand grab irons. The air exhaust cover can easily be constructed over the hole in the turret roof, using a

(Continued on Page 30)

BOOK REVIEW: Tank by Kenneth Macksey and John H. Batchelor — Jim Garrison
(Ballantine Books, New York City, 160 pages, $3.95)

A slightly different type of publication than the military historys we are accustomed to from Ballantine; Tank is a history of the different attempts to combine firepower, armor and mobility in one weapon. Kenneth Macksey and John Batchelow begin with the wood armored wagons of "The Hundred Years War" and end with the MBT's in service and under development presently. Between these two subjects, they manage to briefly cover several hundred tanks and armored cars developed in the twentieth century.

Tanks and armored cars are not the only subject of this book; artillery, antitank weapons, tatics, power plants, transmissions, ballistics, methods of armor construction, armored trains and static defenses are also covered by the authors. Because so much diverse material is covered, Tank is a great book for those with a beginning interest in AFVs. After one trip through this book, the reader is ready for a more specialized study of armored warfare.

About the only redeeming quality of this book, for the more serious armor student, is the mass of illustrations. There are more than four hundred illustrations of varying quality covering all eras of AFV development. There are also many interesting three-view cutaway drawings, and the authors graphically explain many things that no author has had the foresight to do before.

While Tank leaves many things to be desired, Ballantine should be encouraged to do more books similar to it. At least give Tank a thorough examination the next time you see it, wherever Ballantine books are sold.

COMING SOON: In response to numerous requests from our readers, we will be reprinting the best articles, illustrations, etc. from Volume I of the AFV-G2 in a single folded volume. Planned publication date will be the end of December 1971. Pre-publication price is $3.50. The price upon release will be $3.95 so reserve your copy now by sending your check for $3.50 to Baron Publishing Company, P. O. Box 293, La Puente, California 91747.

Wargame Review (Cont. from Page 22)

Fill the sprinkling can and again water the sand well, particularly on hill and ridge crests. As the water runs down, it will contour these elevations and make them appear highly natural. The water will also erase lumps, sharp edges, and finger marks left in the sand. Be careful not to wash out the gullies and river banks! A little water in these areas is plenty. The shale, stones, and buried track will be washed clear by the sprinkling and look just right. The drops will leave small pock marks, but as the top of the sand dries a bit they will become less noticeable, and later steps will make them nearly invisible.

Finally go back over the roads lightly, reshape any areas where the watering did too much work and make any freshly plowed fields that are to appear on the table. The latter is accomplished with either a well pointed pencil or a highly specialized tool--a broad-toothed comb with every other tooth removed. Rutted secondary roads demand the use of the pencil.

Next month the steps to complete the battleground will be covered.

PRODUCT REVIEW: Armor Model Accessories

by Jim Garrison

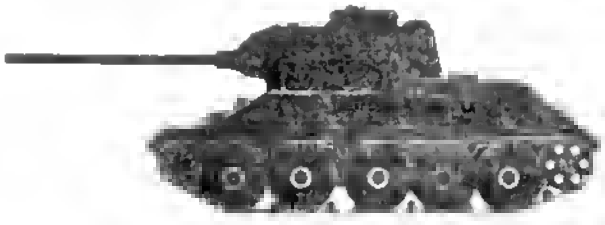
The release of plastic armor accessories in 1/30th to 1/35th scale by Squadron Products, Inc. brought to mind the subject of decorating tanks. Many modelers seem to feel that the only way to finish a tank model is to completely cover it with thirty dollars worth of accessories. These models end up looking like moving ordnance warehouses. The best way to avoid cluttering your tank is to use a photograph as a guide. You don't have to copy it, but it can serve as a guide to placement and amount of extra equipment. I'm not against extra equipment! That's what gives the AFV individuality! But if you're not careful, you'll end up with a tank model hidden under a pile of junk.

The same goes for markings and weathering. All the combatants had extensive marking regulations for their AFV's, but very few vehicles received all of them. Markings are to be applied before weathering is done! It is surprising how many people will apply decals last. Weathering should be applied with a light touch. Also, those tools which were used by the tank crew should not have the same amount of dust on them as other parts of the tank's exterior.

Tools which are molded onto the tank hull should be shaved off and replaced with ones similar to those from Squadron. The Squadron tools are finely detailed in white styrene plastic and there is no problem in attaching them to the model. Each set, which sells for $1.25, contains two jerry cans and nine tools. To provide the armor modeler with this great set of tools, Squadron Products employed the highly skilled craftsmen of Historex of France. These tools should be available from your local hobby shop or at any of the Squadron Shops.

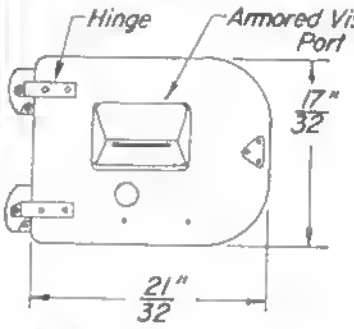
were capped steel shot, with a base detonating explosive charge. We had only seven of the superior Pz. Gr. 40 shells (with tungsten carbide center; high velocity) in the entire Platoon. These shells were reserved for the closest and most dangerous shots, when saving our lives became the biggest concern.

When the attack came, it was just as our Platoon Leader had expected. Our hidden observation posts saw seven Soviet tanks move to and stop on the top of a hill about 800 meters to the north. (Soviet tankers never learned to avoid the crest of hills.) After sitting there for fully five minutes, they evidently "spotted" the tempting infantry "lure" in the distance through the gap in the hills. Our "OP's" told us that they saw men running around, and then the Russian tanks began advancing across the field of grass that lay shimmering in the heat. The T-34's (6 in number) and one small light tank seemed to be coming in an arrow-shaped formation. As they rushed between the hills, I was watching the infantry marching down the road, and waiting for the "decoy gun" to fire. The infantry caught sight of the enemy tanks (who were throwing up quite a dry dust cloud behind them), and they immediately panicked. Then came a "crack" as the decoy gun opened fire. It used a high-explosive round (so that we could see the ranging burst) and the shell came very close to the lead tank (the light T-40 or T-60). Almost immediately, we were busy. Our three guns opened fire, almost with one "crack" with Pz. Gr. 39 shells. My gun (the lone gun on the left side) hit the second tank, at about 100 meters range, in the hull just below the turret. There was a bright flash and "bang" which was felt as much as heard. The T-34 stopped as the crew and ammunition were hit. We immediately switched fire from the smoking target to another T-34 that was starting to turn towards the two opposing guns. Our first shell missed, but the next round neatly drilled a hole between the twin exhaust pipes of the enemy vehicle. Again, there was a muffled explosion, and the enemy tank stopped. There was time to switch targets again; to help "kill" a third tank. Around the "crack" of our anti-tank guns came the "stutter" of our covering infantry MG-34's as they dispatched the enemy crew members who were caught getting out of their vehicles. Our ambush had worked; we destroyed 7 tanks (the light tank was hit by the "decoy gun"), and captured 5 men (the few that had not been killed by the machine guns). We had no casualties, other than a few men (including myself) who were scared, and we had learned that Soviet T-34's were not invincible. . . . . .



Baron's Corner (Cont. from Page 26)

"do-nut" shaped base plate, and a round plate (sheet styrene) cover spaced above the base ring by six "spacer" bolts (that go through the cover). You can use small pins for these bolts; the small pin heads closely resemble the bolt heads. The signal flag port can be made using a circular piece of thin sheet styrene; for the base, and a filed down piece of round sprue for the upper piece. This is the correct style for all versions through the Ausf. D. Later versions used a hinging flat lid, which can be simulated using two concentric circles of thin sheet styrene; a larger one for the base and a smaller one for the hinging lid.



Early Pattern Single Escape Hatch - Monogram Panzer IV.

Hand grab irons can now be added. The shape furnished in the kit is correct for late versions; however, a simple "U" shape is essential for all early varients (through the Ausf. E). These hand irons can be formed from suitable copper wire of approximate 1/32" diameter) and glued in place.

Before adding the turret escape doors to the turret sides, there are other details that should be "retrofitted". All versions of the Pz.IV prior to the Ausf. G had vision devices fitted to the turret sides forward of the escape doors. The armored cover for these vision ports can easily be simulated from thick sheet styrene (with the proper angles filed down with the emery boards) and carefully glued in place. Do not forget the bullet splash strip in front of the covers; this can be simulated by a strip of filed sprue (filed to a triangular shape). Three small holes should now be drilled above the armored vision covers in a triangular pattern; these are for the three large rivets that fasten the opening device for the vision port. Use a #60 diameter drill, and install 3 cut-off pins to simulate the rivet heads.

All of the early versions (through the Ausf. E) of the Panzer IV, used a single door for the turret escape hatch. The Ausf. F (and all later versions) borrowed the double doors from the Panzer III (for better protection). If you're making a very early version, the single door should be constructed from sheet styrene, per our sketch. There was a small strip above these doors (for rain protection-?); this strip can be constructed from stretched sprue, formed to the proper curve after immersion in very hot water. A small block of plastic can be formed from sprue for the escape door stop; this was located forward of the door at the bottom of the turret slope. This completes all side detail. The large "hamper-like" storage compartment can be added to the turret rear, if you are modeling an Ausf. D or later. The earlier versions lacked this storage box.

There were two versions of cupola used on the Panzer IV; the late style furnished in the kit was first installed on the Ausf. E. If you are modeling an earlier version, we will illustrate the early cupola in next month's article. Stay tuned. . . . . .

Wargaming Convention

THE INTERNATIONAL FEDERATION OF WARGAMING is sponsoring three wargaming conventions in the Midwest during the summer of 1971. The first of these will be at MT. PROSPECT, ILLINOIS on June 26th, the second in ST. LOUIS, MISSOURI on July 19th, and the third in LAKE GENEVA, WISCONSIN on August 21st and 22nd. "GENCON 4" in Lake Geneva will feature the Armored Fighting Vehicle in wargaming with a 48-player "PANZER-BLITZ" four round elimination tournament, an armor miniatures team elimination tournament for eight teams in three rounds, and an AFV model / diorama competition. Trophies and prizes to be awarded for each event include CASH, AVALON-HILL GAMES, and BOOKS on wargaming. Entry fees and general information are available from Lenard Lakofka, 1806 N. Richmond Street, Chicago, Ill., 60647. Also available from the same address full information on the IFW and its photo-offset magazine.... THE INTERNATIONAL WARGAMER!!!

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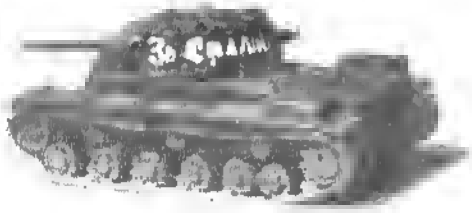

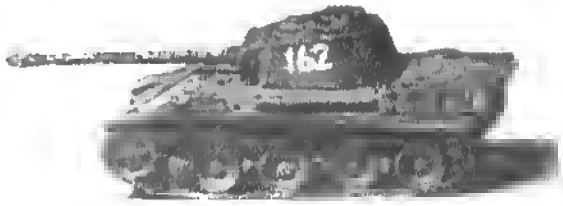

GHQ micro-armour offers an extensiva line of metal WW II miniatures designed specifically for wargaming. Send 3D¢ in coin for a current listing, or get them at fine hobby stores everywhera. In Canada send to Dundas Hobbies 811 Dundas St., London, Ont.

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